

**A REVISION OF THE PENTATOMINE GENUS
SERDIA STÅL, 1860 (PENTATOMIDAE: HEMIPTERA)**

DONALD B. THOMAS, JR. AND L. H. ROLSTON

U.S. Livestock Insects Laboratory, P.O. Box 232,
Kerrville, Texas 78028 and

Department of Entomology, Louisiana Agricultural Experiment Station,
Louisiana State University Agricultural Center,
Baton Rouge, Louisiana 70803

Abstract.—The stink bug genus *Serdia* is divisible into two subgenera: *Brasiliicola* Kirkaldy and *Serdia* Stål. Keys for the separation of each and their included species are provided. To the 7 previously known species of *Serdia* we add 6 new species, all placed in the nominate subgenus: *lobata* from Brazil, *ruckesi* from Peru, *quadridens* from Peru, *delphis* from Ecuador, *beckeri* from Panama and Costa Rica, and *bihumulata* from Venezuela.

Becker (1967) revised the genus *Serdia* Stål, 1860, redescribing the four species first described by Stål (1860), augmenting the original description of *concolor* Ruckes, 1958, adding *rotundicornis* Becker, 1967, and providing keys to the two subgenera proposed by Kirkaldy (1909) and to the species. Rolston et al. (1980) included *Serdia* in a key to the genera of Western Hemisphere pentatomines characterized by having an abdominal tubercle apposed apically by the ventrally produced metasternum. However, in this key the genus *Elsiella* Froeschner, 1981, also keys with *Serdia*. The 2 genera are separable by the couplet provided by Froeschner (1981) except that antennal segment II of *Serdia* ranges from about $\frac{1}{5}$ to about $\frac{3}{5}$ as long as segment III. Here we add six new species to the nominate subgenus of *Serdia*, modify Becker's keys to the subgenera and species of the subgenus *Brasiliicola*, and give a key to the species of the nominate subgenus.

All measurements in the descriptions of new species are from the holotype unless explicitly stated otherwise. Length of the body was measured from the apex of the juga to the apex of the hemelytral membrane. Width was measured across the pronotal humeri. Length of the head was measured from the apex of the juga to an imaginary line joining the ocelli. Width of the head was the greatest anteocular width.

KEYS TO SUBGENERA AND SPECIES OF *Serdia*

Key to the Subgenera of *Serdia* Stål, 1860
(modified from Becker, 1967)

1. Discal area of abdomen bordered laterally by a row of calloused macules, two to a segment with one anterior to other; black fovea in each basal angle of scutellum bordered mesially by calloused yellowish spot; lateral margins of head parallel, apex broadly rounded subgenus *Brasiliicola* Kirkaldy
- Abdomen and scutellum without calloused macules and spots; lateral margins of head converging toward apex subgenus *Serdia* Stål

Key to the Species of the Subgenus *Brasiliicola* Kirkaldy
(modified from Becker, 1967)

1. Size large, male about 14 mm long; body ovate *calligera* Stål
 - Size small, male about 11 mm long; body semi-rhomboidal, abdomen truncated at apex *costalis* Ruckes

Key to the Species of the Subgenus *Serdia* Stål

1. Humeral angles expanded, lobate, produced laterad of hemelytra at base by more than width of eye 2
 - Humeral angles produced laterad of hemelytra at base by less than width of eye .. 4
 2(1). *Connexiva* alternated *apicicornis* Stål
 - *Connexiva* unicolorous 3
 3(2). Humeral lobes directed laterad *rotundicornis* Becker
 - Humeral lobes directed anterolaterad *lobata*, new species
 4(1). Pale wedge along costal margin of each hemelytron includes most of exocorium basally, gradually narrows distally *limbatipennis* Stål
 - Exocoria concolorous with hemelytral discs or only narrow costal margins pale basally 5
 5(4). Apex of scutellum conspicuously pale to unaided eye *ruckesi*, new species
 - Scutellum nearly uniform in color to unaided eye 6
 6(5). Ventral margin of mesosternal carina linear in profile; red line present on lateral submargins of pronotum and connexiva *inspersipes* Stål
 - Ventral margin of mesosternal carina uneven in profile; lateral submargins of pronotum and connexiva without red line 7
 7(6). Abdominal venter with broad, diffuse, fuscous vitta mesially, sometimes expanded to cover most of venter and juga nearly or just contiguous apically *quadridens*, new species
 - Abdominal venter yellowish brown with fuscous limited to suffusion around punctures, or if vittate juga well separated apically 8
 8(7). Apex of abdominal tubercle broadly rounded (Fig. 8) 9
 - Apex of abdominal tubercle narrowly rounded to acute (Fig. 9) 10
 9(8). Rostrum not quite attaining metasternum; costal margin of hemelytra narrowly pale toward base; antennal segment V white; anterolateral margins of pronotum carinate *concolor* Ruckes
 - Rostrum attaining metasternum; costal margin of hemelytra and last antennal segment brown; anterolateral margins of pronotum not carinate *delphis*, new species
 10(8). Mesosternum nearly impunctate on both sides of carina; length about 14 mm; pygophore lacking hamuli (Fig. 2)..... *beckeri*, new species
 - Mesosternum with moderately dense punctation on both sides of carina; length of male about 9.5 mm; pygophore with erect hamulus just mesad of each posterolateral angle (Fig. 3) *bihamulata*, new species

***Serdia lobata*, new species**

Description. Elongate, with humeri produced dorsad and anterolaterad as lobes. Sordid brown, irregularly punctate dorsally. Length 13.5 mm, width 7.3 mm.

Head: Length 1.8 mm, width 1.75 mm. Juga strongly surpassing tylus but not contiguous, leaving narrow cleft between their apices. Juga darkly punctate, this

punctuation extending posteriorly onto base of head as pair of vittae, one on each side just mesad of each ocellus. Antennal segment I fuscous, segments II–IV dark brown (V missing). Segmental lengths 0.8, 0.4, 2.0, 1.7,—mm. Rostrum attaining middle of metasternum.

Thorax: Anterolateral margins somewhat explanate, largely impunctate, without setae, concave from dorsal view, yellow as are posterolateral margins; humeri fuscous from crowded dark punctuation. Scutellum with dark fovea in each basal angle and at apex a dark patch on each side of elongate pale macule. Profile of mesosternal carina even along ventral margin. Metasternum weakly emarginate for reception of abdominal tubercle. Exocoria distinctly paler than hemelytral disc, delineated mesially by row of deep, dark punctures. Membrane vitreous, veins contrastingly dark. Legs with small, scattered maculae.

Abdomen: Tubercle flat, triangular from ventral view, apex narrowly rounded. Spiracles ringed with black. Posterolateral angles of sternites with black spicule. Connexiva light brown with dense concolorous punctations.

Genitalia: Posteroventral emargination of pygophore encompassing mesial, linguulate protuberance from inferior ridge (Fig. 5); protuberance dark, strigose, its posterior margin trisinate from ventral view. Parameres robust, thick, blade-like, obtuse apically. Female unknown.

Holotype: ♂; labeled (a) "BRAZIL, Sao Paulo: Serra Bocaina, S.J. Barreiro 1650 m." (b) "OCT.–NOV. 1969 Alvarenga & Seabra." Deposited in the American Museum of Natural History.

Comments: Allied to *apicicornis* but differing especially in having the connexiva immaculate, much smaller macules on the legs, the metasternum weakly emarginate posteriorly, and much longer parameres, which in *apicicornis* can be seen only by removing the proctiger.

Serdia ruckesi, new species

Description. Elongate-ovate; shiny olivaceous brown dorsally; mesial line on base of head and anterior disc of pronotum, irregular transverse fascia between humeri, and apex of scutellum, yellow-ivory; obscure fuscous macule on disc of each corium with ivory spot at anterior margin. Distal $\frac{7}{10}$ of antennal segment IV and about $\frac{1}{2}$ of segment V beginning $\frac{1}{5}$ its length from base, fuscous. Length 15.5 mm, width 8.0 mm.

Head: Length 2.1 mm, width 2.0 mm. Juga converging before tylus, nearly contiguous. Rostrum just attaining metasternum. Antennal segments 0.9, 0.8, 2.1, 2.5, 3.2 mm long.

Thorax: Humeri obtusely angular, slightly produced; anterolateral margins of pronotum neither carinate nor reflexed, distinctly concave from dorsal view, sparsely fringed with long setae. Fovea in each basal angle of scutellum black; apex impunctate. Mesosternum feebly produced in middle, ventral margin in profile nearly straight but projecting a little farther ventrad at procoxae. Metasternum broadly and deeply emarginate for reception of abdominal tubercle. Legs maculate.

Abdomen: Posterolateral angles of sternites with spicule. Spiracles ringed with black. Basal tubercle strongly developed, broad, flat, obtuse at apex.

Genitalia: Posterior border of pygophore broadly concave, notched at lateral angles,

each angle attended mesad by thick tuft of setae; posteroventral face with lunate excavation subtending posterior border mesially (Fig. 7). Parameres elongate, thick, narrowing from flattened basal half to terete, sinuate apical half. Females unknown.

Holotype: ♂; labeled "Peru, Dpto. La Libertad, Cumpang above Uctubamba. 2625 M. 16 X 1979, L. J. Barkley." Deposited in the American Museum of Natural History.

Paratypes: 2♂♂; 1 labeled same as holotype; 1 labeled "Peru, Dpto. Cajamarca, Batan to Machete on Zapalache-Carmen trail, 2250–2050 m. 14-June–9 July 1980." Deposited in collections of the authors.

Comments: This species is distinguished by the structure of the pygophore and by the yellow-ivory markings on the dorsum.

Serdia quadridens, new species

Description. Elongate oval; dark sordid brown, densely punctate. Length 13–15 mm, width 6.6–7.5 mm.

Head: Length 1.95 mm, width 1.9 mm. Juga convergent, nearly or just contiguous before tylus. Rostrum attaining middle of metasternum. Antennal segments 0.8, 0.6, 2.0, 2.2, 2.9 mm long.

Thorax: Carina along very slightly concave anterolateral margins of pronotum becoming obsolete anteriorly, bearing sparse fringe of moderately long setae; humeral angles narrowly rounded, slightly produced. Small, pustular macule on each corium at end of R+M vein usually pale; membrane infuscated. Mesosternal carina nearly flat except anteriorly, feebly produced in middle, gradually more so anteriorly to form stout, compressed, pale projection between procoxae. Metasternum scatteringly punctate, broadly and deeply notched for reception of abdominal tubercle. Legs maculate.

Abdomen: Stout basal tubercle flat ventrally, narrowly rounded apically. Spiracles ringed with black. Broad, diffuse, mesial vitta on venter fuscous, sometimes expanded to cover most of venter. Connexival color and punctation like adjacent area of venter, brown with dark, moderately dense punctation.

Genitalia: Posterior margin of pygophore broadly V-shaped, heavily setose, notched mesially; notch attended by 4 black, tuberculate teeth. Parameres with basal flange and elongate apical shaft; shaft terete, thin; bent slightly mesoventrad apically. Female unknown.

Holotype: ♂; labeled "Peru, Dpto. La Libertad Cumpang. above Uctubamba. 2625 M. 13 X 1979. L. J. Barkley." Deposited in the American Museum of Natural History.

Paratypes: 3♂♂; labeled same as holotype. Deposited in the United States National Museum and collections of the authors.

Comments: This species can be distinguished by the incomplete carina on the anterolateral margin of the pronotum, the fuscous mesial vitta on the abdominal venter, and the 4 black tubercles on the posterior pygophoral border.

Serdia delphis, new species

Description. Elongate-ovoid; sordid yellowish-brown. Fovea in each basal angle of scutellum darkened. Length 14.0 mm, width 6.6 mm.

Head: Length 1.9 mm, width 1.8 mm. Testaceous punctures numerous on juga, tylus and disc of head; juga prolonged beyond tylus but not contiguous, leaving

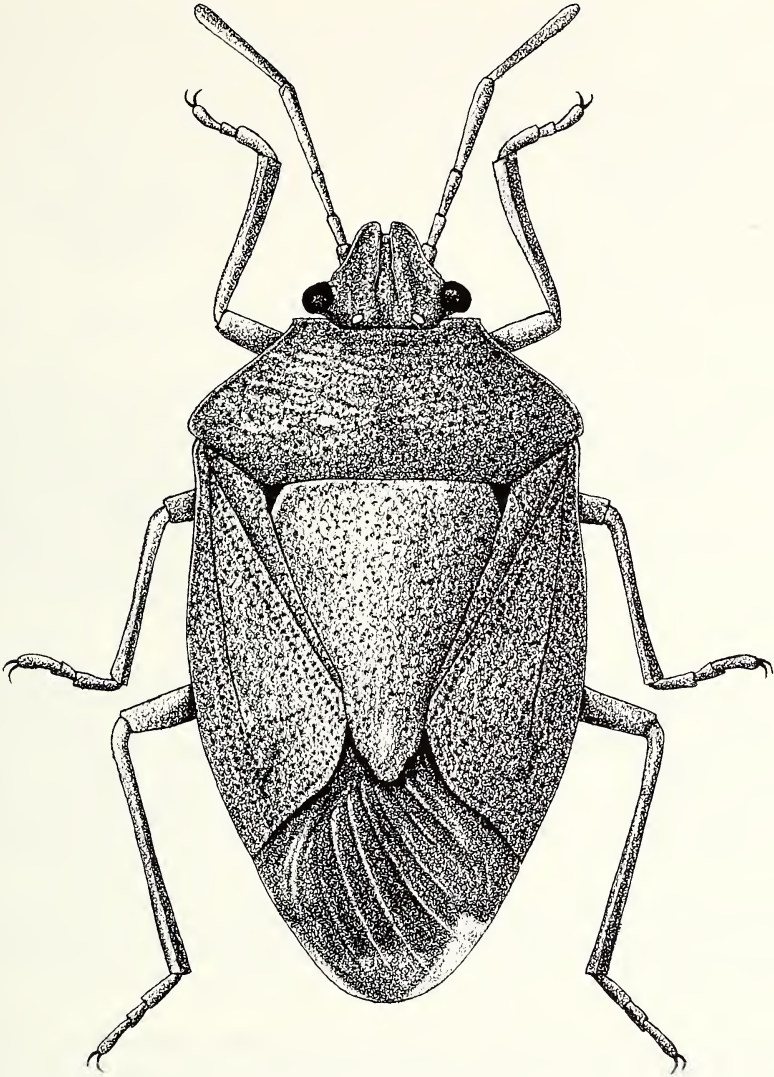
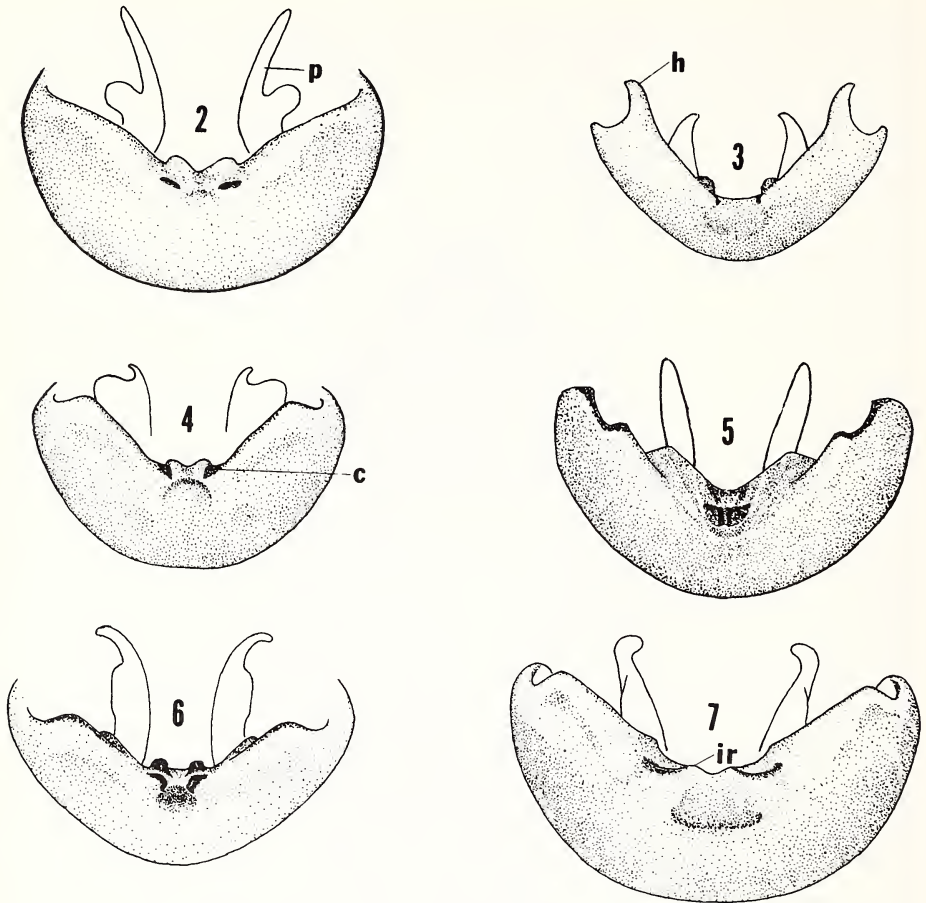


Fig. 1. *Serdia beckeri*.

elongate cleft between apices. Rostrum surpassing anterior margin of metasternum but not attaining middle. Antennae tan, 2 basal segments testaceously dotted; segmental lengths (from paratype) 0.9, 0.6, 1.6, 1.8, 2.4 mm.

Thorax: Dorsal pronotal punctation denser and darker near margins; anterolateral margins not clearly carinate, weakly concave from dorsal view, bearing sparse fringe of long setae; humeri subangular, slightly produced. Scutellum evenly punctate on disc; punctation obscure apically; apex subacuminate. Membrane of hemelytra lightly fumose, veins darker. Mesosternum weakly produced at middle, increasingly more



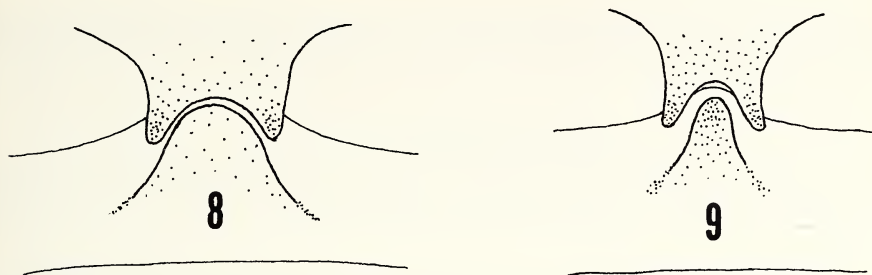
Figs. 2-7. Pygophore, caudal view with proctiger omitted. 2. *beckeri*, paramere (p). 3. *bihumulata*, hamulus (h). 4. *delphis*, cusp (c). 5. *lobata*. 6. *quadridens*. 7. *ruckesi*, inferior ridge (ir).

so toward procoxae, terminating in wedge between procoxae. Metasternum broadly emarginate for reception of abdominal tubercle. Legs with scattered brown maculae.

Abdomen: Basal tubercle broadly rounded apically, flat, reaching posterior margin of metacoxae. Spiracles obscurely ringed with brown to nearly concolorous with sternites. Black spicule present on posterolateral angles of sternites. Connexiva yellowish brown with sparse, obscure punctation.

Genitalia: Lateral margins of pygophore bearing entally directed dark tooth on each side. Posteroventral border emarginate mesially, forming cavity enclosed entally by inferior ridge; emargination tended on each side by dark cusp (Fig. 4). Lateral process of parameres lobate; apical process elongate, sinuate, terminally acuminate.

First gonocoxae somewhat tumescent, contiguous mesially, concealing triangulum. Eighth paratergites spinose apically.



Figs. 8, 9. Abdominal tubercle in apposition to metasternum. 8. *S. delphis*. 9. *S. beckeri*.

Holotype: ♂; labeled (a) "Mt. Tungurahua, III:4:37, Ecuad." (b) "Col. by Wm. Clarke-MacIntyre" (c) "'Chaupi' 3000 m." (d) "Chicago N.H. Mus. Collection (ex W. J. Gerhard Colln.)." Deposited in the American Museum of Natural History.

Paratype: ♀; labeled same as holotype. Deposited in L. H. Rolston collection.

Comments: The male genitalia are similar to those of *beckeri*, but this species differs from *beckeri* in that the anterolateral pronotal margins do not have a reflexed carina, the mesosternal carina is less produced at the procoxae, and the abdominal tubercle is shorter and broadly rounded apically.

Serdia beckeri, new species

Description. Elongate-ovate; sordid tan. Fovea in each basal angle of scutellum and small callus on each subapical margin black (Fig. 1). Length 14.2 mm, width 6.9 mm.

Head: Length 2.1 mm, width 1.9 mm. Juga longer than tylus but not contiguous, leaving apical cleft. Rostrum attaining middle of metasternum. Antennal segments I–IV sordid tan, thickly dotted with fuscous (V missing); segmented lengths 0.8, 0.9, 1.8, 2.1, —.

Thorax: Anterolateral pronotal margins carinate, slightly reflexed, sparsely fringed with long setae; humeri rounded, not produced. Mesosternum weakly produced at middle, strongly so anteriorly, carina barely reaching between procoxae. Metasternum deeply emarginate for reception of abdominal tubercle. Legs rufescent, obscurely maculate.

Abdomen: Mesial tubercle elongate, reaching middle of metacoxae, subacuminate, flat ventrally. Spiracles black. Posterolateral angles of sternites acute but lacking spicule. Connexival color and punctuation conforming to adjacent area of venter, sordid tan with dark punctuation. Venter with or without mesial vitta.

Genitalia: Mesial depression in posterior pygophoral border supertended by obtusely bidentate inferior ridge and flanked on each side by darkened but otherwise inconspicuous cusp (Fig. 2). Parameres toward base expanded laterad into obtuse process; apical process narrowly terete, elongate. Female unknown.

Holotype: ♂; labeled "PANAMA, Chiriqui Dist. Renacimiento Santa Clara, 4000' V-23-26 1977." Deposited in the American Museum Natural History.

Paratype: ♂; labeled "C.R., Punt. Monteverde Cloud For. Res. V-27, 31-84. Riley, Rider & LeDoux." Deposited in collection of junior author.

Comments: Related to *delphis* by the similarity of male genitalia but differing primarily in having reflexed, carinate pronotal margins, the mesosternal carina more prominently produced at the procoxae, and a subacuminate abdominal tubercle.

Serdia bihamulata, new species

Description. Obovate; dull tan dorsally, shining sordid ventrally. Fovea in each basal angle of scutellum and subapical scutellar margin black. Length 9.7 mm, width 5.5 mm.

Head: Length 1.6 mm, width 1.5 mm. Juga broadly contiguous before tylus. Rostrum not quite attaining middle of metasternum. Antennal segments III, IV black, V yellow; segmental lengths 0.6, 0.7, 1.1, 1.6, 1.6 mm.

Thorax: Anterolateral margins with reflexed carina, slightly concave from dorsal view, with sparse fringe of short setae; humeri somewhat produced, moderately rounded. Mesosternum moderately produced at middle, rapidly becoming more so at procoxae. Metasternum conspicuously emarginate for reception of abdominal tubercle. Legs maculate.

Abdomen: Tubercle subspinose apically. Posterolateral angles of sternites without spicules, those of segments 6 and 7 slightly produced. Spiracles ringed with black. Connexiva dull tan with dense, dark punctation.

Genitalia: Hamulus just mesad of posterolateral pygophoral angles erect, bent laterad apically; posterior pygophoral border mesially emarginate, subtended by semi-oval depression with small dark cusp on each side (Fig. 3). Parameres tapering to blunt apex, with small lateral tubercle where bent at middle. Female unknown.

Holotype: ♂; labeled "VENEZUELA, Aragua, Rancho Grande, 1500-1900 m., May 8, 1978. O'Brien & Marshall." Deposited in the American Museum of Natural History.

Comments: Distinguished by its small size and erect hamuli on the pygophore.

ACKNOWLEDGMENTS

The authors express their gratitude to Dr. Randall T. Schuh, American Museum of Natural History, and Dr. Brett C. Ratcliffe, University of Nebraska, for access to specimens of *Serdia* in their care.

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Received July 2, 1984; accepted October 17, 1984.